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ABSTRACT

The purpose of this study was to develop a foundation for reliable and effective measurement of significant parameters in the development of written language skills in school age children. The subjects for the study were 25 nine-year-old children, 12 boys and 13 girls, who were randomly selected from among 1,559 participants. The findings indicated that: the "words per sentence" measure is relatively independent of language productivity, correctness of usage, abstractness, and vocabulary diversity; the "mean length of T-unit" is relatively independent of language productivity and correctness of usage; the "total T-unit" is independent of the "mean length of T-unit"; the "total T-unit" is negatively correlated with correctness of usage; "total words" and "total sentences" are very highly correlated, suggesting that they are equivalent as expressions of productivity; and "total words" and "total sentences" correlate highly with errors of punctuation and addition, vocabulary diversity, and abstractness. Recommendations for the development of a Written Language Profile (WLP) are made on the basis of these findings. (RB)

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LANGUAGE PARAMETERS IN WRITTEN COMPOSITIONS OF NINE YEAR OLD CHILDREN

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Language Parameters in Written Compositions of Nine Year Old Children[1]

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The purpose of the present study is to develop a foundation for reliable and effective measurement of significant parameters in the development of written language skills in school age children. The need for an objective assessment paradigm of children's written language has long been recognized by educators (Hillerich, 1971). With recent advances in the fields of linguistics and psycholinguistics (Chomsky, 1965; McNeill, 1970; Brown, 1973), many elements of written language have become the target of systematic research (Hunt, 1965; Mykelbust, 1965; O'Donnell, et al, 1967; Marshall & Quigley, 1970; Dixon, 1972 and Botal and Granowsky, 1972). Although these studies shed light upon the topic of written language from a variety of perspectives, none were designed to study a broad cross-section of known facets of written language nor have they examined the relationships among such elements. Such knowledge would appear necessary to the design of educational programs for enhancement of written language. Should relatively independent written language parameters be identified, they could contribute to the development of specific goal oriented classroom instructional activities within a written language program.

Development of a Written Language Profile (WLP) through which teachers can assess the status and development of children's written language skills is a crucial element in a written language program. Clearly, one needs to identify the independent elements of written language before they can be assigned as the linguistic

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parameters of a written language profile paradigm.

Some of the most productive work in this area has been carried out by Mykelbust (1965) who investigated three major parameters in school-age children:

(1) Productivity of language:

(a) total words

(b) total sentences

(c) mean length of sentences.

(2) Correctness of language: syntax, as defined by Mykelbust, in terms of its influence on meaning included the following. Measures of:

(a) word usage

(b) word endings

(c) punctuation.

Errors could be due to additions, omissions or substitutions.

(3) Abstract measurement: the extent to which abstract ideas were expressed in written compositions on a scale from one to five.

Mykelbust's analyses, although the most extensive available, had a number of shortcomings; most importantly, the indifference of his method to:

(1) ambiguities surrounding sentence boundaries when conventional definitions are used (Webster)

(2) vocabulary richness.

The present study is focused upon an examination of the inter-relationships among five major written language parameters which have received attention in the literature:

(1) Productivity of language

(2) Minimal terminable syntactic unit (T-unit)

(3) Compliance with rules of correct usage

(4) Diversity and redundancy of vocabulary usage

(5) Extent of expressed abstractness

The development of written language skills presupposes the development and maturation of a number of linguistic and non-linguistic skills (Mykelbust, 1965). If these 5 parameters were to be found independent, their inclusion in a Written Linguistic Profile (WLP), could contribute to a more complete description of the state of the child's written language skills. At the same time, the WLP may also indicate deficient linguistic parameters in most need of written language therapy. No previously published research has incorporated all of these measures.

Method

Subjects

Subjects were 25 nine year old children, 12 boys and 13 girls, who were randomly selected from among 1559 participants in the Educational Follow-Up Study, a longitudinal investigation of long-term educational and behavioral outcomes associated with perinatal and early childhood conditions and events.

Measure

The Mykelbust Picture Story Language Test was individually administered to each child by a trained examiner during the summer preceding entrance into fourth grade. On this instrument subjects are asked to write a story about a picture which is placed before them for the duration of the examination. They are given no guidance as to length, format or type of story expected of them, and all questions are answered in a neutral manner. (Specific directions for test administration may be found in Development and Disorders of Written Language, Mykelbust, 1965, pp. 92-93.)

Parameters of Investigation

(1) Productivity of Language:

(a) total words

(b) total sentences

(c) words per sentence (using Mykelbust, 1965, conventional definition of sentence)

(2) The minimal terminable syntactic unit: the T-unit. Using Hunt's (1965) definition of T-unit as the unit containing one independent clause plus the dependent clauses attached to or embedded within it. The T-unit has been widely employed in recent studies of written language as an alternative to the conventional sentential definition (O'Donnell, et al, 1967: Dixon, 1971).

(3) Compliance with rules of correct usage. Errors of addition, omission and substitution were investigated in:

(a) word usage

(b) word endings

(c) punctuations

(4) The redundancy and diversity of the vocabulary using Carroll's (1964) definition that is relatively independent of sample size: the square root of twice the number of words in the sample.

(5) The extent of expressed abstractness using Mykelbust definitions of five distinct points on a concrete-abstract scale.

Tester Reliability

After each element within the written language parameters was clearly defined, three scorers spent from two to four sessions reviewing the definitions prior to the actual analyses. Each of the three then scored all language parameters of all the 25 written compositions. Correlations between scorers ranged from .725 to .999 with the vast majority of correlations following above .900. The following results and discussion were based on the analyzed data of one scorer selected on a random basis as representative of all three scorerers.

Results and Discussion

Table 1 presents the intercorrelations among the various language parameters.

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Table 1 about here

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Table 1 should be read as follows: the "total words" parameter correlates at .933 with the total sentences parameter.

The discussion will center around two main points:

(1) the group of parameters that had an intercorrelation of .600 and higher, designated as the highly interrelated parameters

(2) the groups of parameters that were found to have an intercorrelation of .270 or lower, designated as the relatively independent parameters.

(1) The highly interrelated parameters. The high correlation between total words and total sentences (.933) suggests that both are expressions of productivity: the more words there are the more sentences there are. Such a high correlation suggests that the simpler measure, total words, is sufficient to reflect this parameter. Interestingly, Mykelbust's third measure of productivity, "words per sentence," was not found to be significantly related to either total words or total sentences.

The amount of written language ("total words" and "total sentences") was found to be highly related to some measures of compliance with correct usage rules. The "total words" and "total sentences" measures correlated .646 and .635 respectively with "addition" errors, and .707 and .658 with punctuation errors: an increase in the productivity of written language resulted in an increase in the frequency of "punctuation" and "addition" type errors. Lesser degrees of relationship were found between "total words and sentences" and errors involving "word usage," "omission" and "substitution."

There is a high correlation between the TTR parameter and the language productivity variables, .773 with total words and .664 with total sentences. Carroll's (1964) formula of measuring TTR independent of sample size was used. Findings in the present investigation suggest that there is less redundancy (more diverse vocabulary) in larger samples of written language. This runs contrary to findings based on data from oral language (Siegel, 1963) in which the TTR declines (redundancy increases) as the speech sample is increased.

Both measures of productivity are correlated with what Mykelbust defined as the "abstractness" parameter, .744 with total words and .617 with total sentences. It is of some interest to note that the "abstractness" parameter is independent of the previously suggested language maturity index, namely, the mean length of T-unit. It appears that the "abstractness" level tends to increase with the production of language, but not with the maturity of language (more about this topic in the next section).

Some measures of correct usage tend to be highly interrelated. "Word usage" errors correlated .902, .710 and .837 with the "additions," "omissions" and "substitution" errors respectively. The "punctuation" errors correlated .631 and .634 with the "addition" and "omission" errors, while the "addition" errors correlate .602 and .678 with the "omissions" and "substitution" type errors.

(2) The relatively independent parameters. One of the more intriguing findings relates to the independence of "words per sentence" from "total words" and "total sentences." The correlations

were .007 and -.257 respectively. This finding suggest the "words per sentence" measure may be an expression of a linguistic parameter other than productivity of written language which was previously suggested by Mykelbust and others. The "words per sentence" measure appears to be independent of all other language parameters except for a relatively low correlation with the mean length of T-unit .478. Since the latter was noted by Hunt (1965) to be an index of language maturity, the relatively high amount of variance it shares with the "words per sentence" variable suggests that the latter may also be an index of language maturity. Language maturity appears to be independent of productivity.

The "words per sentence" measure is independent of errors of correctness: it correlates .043 with errors of "word usage," .082 with "word order," .069 with "punctuations," .007 with "additions," -.208 with "omissions" and .098 with errors of "substitution." It was also found to be independent of the "abstractness" (.177) and TTR (.220) parameters.

As was noted earlier, the mean length of T-units was suggested by Hunt (1965) and substantiated by O'Donnell, et al (1967) and Dixon (1971) as a reliable index of language maturity. As such, it shares a marked similarity with the "words per sentence" parameter in respect to its independence of the productivity and correctness parameters.

The mean length of T-units correlates .159 with "word usage," .190 with "word order," .160 with "punctuation," .189 with "additions," .072 with "omissions" and .118 with "substitution" errors.

The "mean length of T-unit" appears to be independent of the "total T-unit" measurement (.040), and most intriguingly, the "total T-unit" measurement appears to be independent of both measures of written language productivity: -.068 with "total words" and -.093 with "total sentences." Perhaps the "total T-unit" measures a linguistic parameter that is different from the written language productivity parameter, and at the same time different from the maturity aspects of written language as measured by the "mean length of T-unit" or "words per sentence."

The "total T-unit" measurement was the only measurement which had substantial negative correlations with some measures of correctness: correlating -.504 with "word usage" errors and -.499 with the "omission" type errors.

In conclusion, our findings indicate that:

A. The "words per sentence" measure is relatively independent of:
   (1) language productivity
   (2) correctness of usage
   (3) abstractness
   (4) TTR

B. The "mean length of T-unit" is relatively independent of:
   (1) language productivity and
   (2) correctness of usage.

C. The "total T-unit" is independent of the "mean length of T-unit."

D. The "total T-unit" is negatively correlated with correctness of usage.

E. "Total words" and "total sentences" are very highly correlated suggesting that they are roughly equivalent as expressions of productivity.

F. Both "total words" and "total sentences" (language productivity) correlate highly with:

(1) errors of "punctuation" and "addition"

(2) vocabulary diversity (TTR)

(3) abstractness

On the basis of those findings a tentative recommendation for development of a Written Language Profile would include the following independent parameters:

(1) Written language productivity as measured by total words or total sentences (this parameter is highly correlated with measures of abstractness, vocabulary richness and correct usage).

(2) Dimensions of language maturity as measured by the mean length of T-units or words per sentence.

(3) Dimensions of language maturity (other than in [2]) as measured by Total T-units.

Should further research substantiate the findings of the present study, the relatively independent written language parameters here identified may be used as the basis for a written language profile and for the development of classroom written language curriculum.

References

Brown, R., A First Language, the early stages. Harvard University Press, Cambridge, Mass., 1973,

Botel, M. and Granowsky, A., A formula for measuring syntactic complexity: A directional effort, Elementary English, April, 1972.

Carroll, J. B., Language and Thought, Prentice-Hall, Inc. Englewood Cliffs, New Jersey, 1964.

Chomsky, N. Aspects of the Theory of Syntax. Cambridge: MIT.

Dixon, E. A., Syntactic indexes and student writing performance: A paper presented at NCTE - Las Vegas, 1971, Elementary English, May, 1972.

Fries, C. C. The Structure of English and Introduction to the Construction of English Sentences. Harcourt, Brass, 1952.

Hillerich, R. L., Evaluation of Written Language, Elementary English, November, 1971.

Hunt, K. W., Grammatical structures written at three grade levels. Research report No. 3, National Council of Teachers of English, 1965.

Marshall, W. J. A., and Quigley, S. P., Quantitativ and qualitative analysis of syntactic structure in the writte. language of hearing impaired students. Institute for Research in Exceptional Children, University of Illinois, 1970.

McNeill, D. A. The acquisition of language: The study of developmental psycholinguistics. New York: Harper & Row, 1970.

Mykelbust, H. R. Development and Disorders of Written Language, Volume One, Picture Story Language Test. Grune & Stratton, New York and London, 1965.

O'Donnell, R. C., Griffin, W. J., and Norris, R. C. Syntax of kindergarten and elementary school children. Champaign, Illinois: NCTE, No. 8, 1967.

Siegel, G. M., Studies on T. T. R., in Schiefelbusch, R., Language studies of MR children. J. S. H. D. monograph 10, 1963.

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Table 1

The Intercorrelation Between Language Measures

	Total Words	Total Sentences	Words P. Sentences	Total T. Units	Mean Length of T.	Word Usage	Word Order	Punctuation	Additions	Omissions	Substitution	T.T.R.	Abstractions
Total words		.9331	.0069	-.0684	.2047	.5398	.2301	.7064	.6459	.4897	.4428	.7734	.7439
Total sentences			-.2573	-.0930	.0663	.5711	.1803	.6580	.6354	.5697	.4363	.6641	.6171
Words per sentence				-.1296	.4775	.0426	.0824	.0690	.0070	-.2075	.0982	.2203	.1720
Total T-units					.0403	-.5036	-.2657	-.2534	-.3377	-.4992	-.3967	-.1070	-.1590
Mean length of T-units						.1592	.1961	.1599	.1888	.0720	.1179	.4258	.3705
Word usage							.4458	.4927	.9019	.7103	.8374	.4486	.5239
Word order								.3156	.4354	.2335	.2740	.2159	.3085
Punctuation									.6310	.6336	.3493	.5606	.6200
Addition										.6017	.6777	.4534	.5461
Omission											.3724	.4179	.6041
Substitution												.3960	.3346
T.T.R.													.7923
Abstractness													